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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,679	01/04/2002	Stephen Leslie Buchwalter	EN9-98-117-US2	9725
30449	7590	11/28/2003	EXAMINER	
SCHMEISER, OLSEN + WATTS SUITE 201 3 LEAR JET LATHAM, NY 12033			BROCK II, PAUL E	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,679

Applicant(s)

BUCHWALTER ET AL.

Examiner

Paul E Brock II

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-17, 20-25, 27-29 and 31-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-17, 20-25, 27-29 and 31-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10, 11, 14, 15, 20, 24, 27 – 29, and 31 – 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman et al. (USPAT 5578869, Hoffman) in view of Crane et al. (USPAT 4888449, Crane).

With regard to claim 10, Hoffman discloses in figure 1, figure 2, and column 4, lines 18 – 65 a method for forming an electronic structure. Hoffman discloses in figure 1, figure 2, and column 4, lines 23 – 31 providing a metallic plate (22) such that all exterior surfaces of the metallic plated are exposed to an ambient atmosphere. Hoffman discloses in figure 1, figure 2, and column 4, lines 40 – 56 forming an inorganic mineral layer (24) on the metallic plate. Hoffman discloses in figure 3, and column 6, lines 3 – 6 forming an polymer adhesion layer (54) on the mineral layer. Hoffman does not teach forming an adhesion promoter layer on the mineral layer before forming the adhesion layer. Crane teaches in column 7, lines 51 – 59 forming an adhesion promoter layer on a mineral layer (43) after a step of forming a mineral layer is performed. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the adhesion promoter layer of Crane in the method of Hoffman in order

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to improve adhesion of the inorganic mineral layer to the adhesion layer as stated column 7, lines 51 – 59 of Crane.

With regard to claim 11, Hoffman discloses in column 4, lines 40 – 56 wherein forming the mineral layer includes forming the mineral layer having a mineral selected from the group consisting of silicon carbide.

With regard to claim 14, Hoffman discloses in column 4, lines 23 – 31 wherein providing the metallic plate includes providing the metallic plate having a metallic substance of copper.

With regard to claim 15, Crane teaches in column 7, lines 51 – 59 wherein forming the adhesion promoter layer includes forming the adhesion promoter layer having an adhesion promoter of titanate.

With regard to claim 20, Hoffman, in figure 3 and column 6, lines 3 – 6, in combination with Crane, in figure 1 and column 3, lines 17 – 18, teaches further comprising bonding the adhesion promoter layer to a structural adhesive (54 in Hoffman, 60 in Crane).

With regard to claim 24, Hoffman discloses in figures 1 and 2 wherein forming the mineral layer comprises forming the mineral layer covering an edge surface of the metallic plate and a portion of a top surface of the metallic plate.

With regard to claim 27, Crane teaches in column 7, lines 51 – 59 wherein forming the adhesion promoter layer includes forming the adhesion promoter layer having an adhesion promoter comprising a silane.

With regard to claim 28, Hoffman discloses in figure 1, figure 2, and column 4, lines 18 – 65 a method for forming an electronic structure. Hoffman discloses in figure 1, figure 2, and column 4, lines 23 – 31 providing a metallic plate (3) such that all exterior surfaces of the

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metallic plated are exposed to an ambient atmosphere. Hoffman discloses in figure 1, figure 2, and column 4, lines 40 – 56 bonding a mineral layer to the metallic plate. Hoffman discloses in figure 3, and column 6, lines 3 – 6 forming an polymer adhesion layer (54) on the mineral layer. Hoffman does not teach forming an adhesion promoter layer on the mineral layer before forming the adhesion layer. Crane teaches in column 7, lines 51 – 59 covalently bonding an adhesion promoter layer to a mineral layer (43). It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the adhesion promoter layer of Crane in the method of Hoffman in order to improve adhesion of the inorganic mineral layer to the adhesion layer as stated column 7, lines 51 – 59 of Crane.

With regard to claim 29, Hoffman discloses in figure 1, figure 2, and column 4, lines 18 – 65 a method for forming an electronic structure. Hoffman discloses in figure 1, figure 2, and column 4, lines 23 – 31 providing a metallic plate (3) such that all exterior surfaces of the metallic plated are exposed to an ambient atmosphere. Hoffman discloses in figure 1, figure 2, and column 4, lines 40 – 56 bonding a mineral layer to the metallic plate. Hoffman discloses in figure 3, and column 6, lines 3 – 6 forming an polymer adhesion layer (54) on the mineral layer. Hoffman does not teach forming an adhesion promoter layer on the mineral layer before forming the adhesion layer. Crane teaches in column 7, lines 51 – 59 forming an adhesion promoter layer to a mineral layer (43) after a step of forming a mineral layer such that said bonding to the mineral layer is moisture resistant. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the adhesion promoter layer of Crane in the method of Hoffman in order to improve adhesion of the inorganic mineral layer to the adhesion layer as stated column 7, lines 51 – 59 of Crane.

With regard to claim 31, Hoffman in combination with Crane teaches wherein the step of bonding the mineral layer to the metallic plate is performed after the step of providing a metallic plate is performed, wherein the step of covalently bonding the adhesion promoter layer to the mineral layer is performed after the step of bonding the mineral layer to the metallic plate is performed.

With regard to claim 32, Hoffman in combination with Crane teaches wherein the step of bonding the mineral layer to the metallic plate is performed after the step of providing a metallic plate is performed, wherein the step of bonding the adhesion promoter layer to the mineral layer is performed after the step of bonding the mineral layer to the metallic plate is performed.

With regard to claim 33, Hoffman discloses in figure 2 wherein the step of forming the mineral layer on the metallic plate comprises forming the mineral layer on first and second exposed surface of the exposed surfaces, and wherein the first and second exposed surfaces are not coplanar.

3. Claims 12 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman and Crane as applied to claim 10 above, and further in view of optimization of ranges.

Hoffman teaches in column 4, lines 48 – 53 wherein the thickness of the mineral layer is about 0.013 mm. Hoffman and Crane do not teach a thickness for the mineral layer that is about 1000 angstroms. MPEP 2144.05 states that differences of ranges between the claimed invention and the prior art do not define patentable subject matter unless there is evidence indicating that the range is critical. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the thickness of the mineral layer of about 1000 angstroms in the

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method of Hoffman and Crane in order to use an optimal range that would be appropriate for the method and could be found through routine experimentation.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman and Crane as applied to claim 10 above, and further in view of Shannon et al. (USPAT 5466617).

Hoffman discloses in figure 2a wherein forming the mineral layer includes physically depositing the mineral layer on a clean surface of the metallic plate. Hoffman and Crane are silent to forming the mineral layer using a physical deposition that includes sputtering. Shannon discloses in column 6, line 64 – column 7, line 9 a physical deposition technique for a mineral layer that includes sputtering the mineral layer. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the sputtering method of Shannon in the method of Hoffman and Crane in order to use a physical deposition forming method that is well understood in the art.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman and Crane as applied to claim 10 above, and further in view of Nishimura et al. (USPAT 5604380, Nishimura).

With regard to claim 16, Crane teaches in column 7, lines 51 – 59 wherein forming the adhesion promoter layer includes forming the adhesion promoter layer having a silane. Hoffman and Crane are silent to what silane material the adhesion promoter is formed. Nishimura discloses in figure 2a wherein forming an adhesion promoter layer (5) includes forming the adhesion promoter layer having a silane consisting of 3-glycidoxypentyltrimethoxysilane. It

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would have been obvious to one of ordinary skill in the art at the time of the present invention to use the silane material of Nishimura in the method of Hoffman and Crane in order to form the silane material of a well known silane material.

6. Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman and Crane as applied to claim 10 above, and further in view of Kozono (USPAT 5619070).

With regard to claim 17, Hoffman discloses in figure 3 providing an electronic assembly (10). Hoffman discloses in figure 3 and column 6, lines 3 – 6 providing an adhesive material (54). Hoffman discloses in figure 3 providing an electronic carrier (42). Hoffman teaches in figure 3 coupling the electronic assembly to the electronic carrier. Hoffman, in figure 3 and column 6, lines 3 – 6, in combination with Crane, in figure 1 and column 3, lines 17 – 18, teaches coupling the metallic plate to the electronic carrier by interfacing the adhesive material between the adhesion promoter layer and the electronic carrier. Hoffman and Crane do not teach coupling the metallic plat to the electronic assembly by interfacing the adhesive material between the adhesion promoter layer and the electronic assembly. Kozono discloses in figures 2a and 2b coupling a metallic plate (13) to an electronic assembly (11) by interfacing an adhesive material (13) between the metallic plate and the electronic assembly. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the adhesive material between the metallic plate and the electronic assembly of Kozono in the method of Hoffman and Crane in order to protect the electronic assembly from foreign particles that cause shorts. It would have been further obyious in the method of Hoffman, Crane, and Kozono that the adhesive material would be between the adhesion promoter layer and the electronic assembly.

7. - Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman and Crane as applied to claim 10 above, and further in view of Robeson et al. (GB PAT 2297503, Robeson).

Crane teaches in column 7, lines 51 – 59 wherein the adhesion promoter layer is a plating. Hoffman and Crane are silent to the thickness of the adhesion promoter layer. Robeson teaches on pages 2, lines 18 – 24 wherein an adhesion promoter layer has a thickness of at least a monolayer. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the thickness of Robeson in the method of Nishimura in order to use a minimal of material to improve adhesion as stated by Robeson in the paragraph linking pages 2 and 3.

8. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman and Crane as applied to claim 10 above, and further in view of one of ordinary skill in the art.

Crane teaches in column 7, lines 51 – 59 wherein the adhesion promoting layer is a chemical compound. It is not clear if the adhesion promoting layer of Nishimura is either crystalline or amorphous. It is well known in the art to have an adhesion promoting layers of a chemical compound taking either a crystalline or an amorphous structure. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use an amorphous or crystalline adhesion promoting layer in order to choose a structure that is desirable for the particular application depending on conductivity and surface tension properties desired.

Response to Arguments

9. Applicant's arguments with respect to claims 10 – 17, 20 – 25, 27 – 29, and 31 – 33 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul E Brock II whose telephone number is (703) 308-6236. The examiner can normally be reached on 8:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Paul E Brock II
November 24, 2003

A handwritten signature in black ink, appearing to read "Paul E Brock II", with a stylized flourish at the end.